

1           2 The improvement of claim 1 wherein said a subsequent transfer of said heat in said  
2       liquid medium to a gaseous medium includes said gaseous medium conveying said  
3       transferred heat and radiated heat from said apparatus to an ambient outside said  
4       apparatus.

4. The improvement of claim 3 wherein said serpentine passageway is a plurality of  
said passageways resulting from top and bottom plates each with a protruding  
interdigitating pathway configurations.

1           6. The improvement of claim 4 wherein said serpentine passageway is a plurality of

1           8. The improvement of claim 6 where said component includes an embedded pump at  
2           site joining four serpentine pathways at a pump site.

1        10. The improvement of claim 9 including a heat exchanger adapted to transfer said heat  
2        through a gaseous medium to an ambient of said electronic apparatus.

1        11 The improvement of claim 10 wherein said transfer of said heat in said  
2        liquid medium to a gaseous medium includes said gaseous medium conveying said  
3        transferred heat and radiated heat from said apparatus to an ambient outside said  
4        apparatus.

1        12. In the dissipation of heat through radiating surface areas of integrated circuits  
2        in electronic apparatus,  
3        the improvement comprising :  
4        a transfer component for transfer of heat radiating from the radiating surface area of said  
5        integrated circuits to a liquid medium,  
6        said transfer component having first and second essentially parallel sides with  
7        the radiating surface area of each integrated circuit of an array in contact with  
8        one of said sides,  
9        said transfer component including a heat exchanger adapted to transfer said heat  
10       through a gaseous medium to an ambient of said electronic apparatus.

1       13 The improvement of claim 12 wherein said transfer of said heat in said  
2       liquid medium to a gaseous medium includes said gaseous medium conveying said  
3       transferred heat and radiated heat from said apparatus to an ambient outside said  
4       apparatus.

1       14. The process of transfer of heat from an area of densely positioned sources radiating  
2       through a planar surface of an element of an electronic apparatus,  
3       comprising the steps of:  
4       providing a radiation to liquid heat transfer component positioned in contact with said  
5       area on said surface, and,  
6       providing a heat exchange mechanism operable to transfer heat in the liquid in said

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the further providing of multiple serpentine liquid passageways in said component.